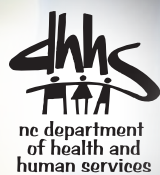


NORTH  
CAROLINA  
Annual  
School Health  
Services Report  
2008-2009



North Carolina Department  
of Health and Human Services

Division of Public Health

Women's and Children's  
Health Section

Children and Youth Branch

School Health Unit



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## Executive Summary

North Carolina takes the position that health and education are interdependent; therefore the identification of health-related barriers to learning is crucial to the provision of an appropriate educational plan for every student. To meet that objective, North Carolina has instituted comprehensive school health services in every school district. The state has made comprehensive school health services a priority through strategies such as the N.C. Healthy Schools Coordinated School Health program, the N.C. School Health Leadership Assembly, through local funding and state funding directed toward school health services and personnel, and through implementation of a regional and state network of school nurse consultants.

The National Center for Education Statistics puts North Carolina as the 10th largest state public school system in the country. The number of children in North Carolina public schools increased one percent over the past two school years, from 1.404 million in 2007-2008 to 1.410 million in 2008-09. During the same period, the number of full time school nurse positions increased from a full-time equivalence of 1,147 to 1,169 nurses.

School nurses in North Carolina are employed by a variety of agencies. Among the 115 school health programs, more than two-thirds (70%) were administered by school districts. The remaining third of the programs were administered by local health departments, hospitals, or a combination of all three. Funding for school nurse positions comes from a variety of sources including local and state funds, federal Title V block grants, categorical funds, and public and private foundations.

The ratio of school nurses to students improved from 1:1,225 in 2007-2008 to 1:1,207 this past school year. Over the past decade, the school nurse-to-students ratio has been cut in half, enabling more students to access health services

from a school nurse. In August 1998, about 556 school nurses delivered services in 87 counties, carrying caseloads of about 2,450 students each. Ten years ago, students in 13 counties had virtually no access to a school nurse. To enable school nurses to deliver comprehensive health care to students, the American Academy of Pediatrics, the Centers for Disease Control and Prevention, and the National Association of School Nurses recommend a ratio of no more than 1 nurse per 750 students.

The school nurse must be expert in clinical nursing; oral and written communication; utilization of epidemiological principles, including monitoring for clusters of symptoms that may indicate an emerging health threat for students and staff; educating the school community on current health topics; advocating for students; crisis management and leadership. National certification in school nursing is the standard by which school nurses are judged to have the knowledge and skills necessary to provide health services in the school setting. During 2008-09, the percentage of nationally certified school nurses in North Carolina increased nine percentage points, to 50 percent.

A critical function of school nurses is identifying students with chronic health conditions. The number and percentage of students with chronic health conditions continues to increase. In 2008-09, school nurses identified 75,576 students with asthma, 18,439 students with severe allergies, and 4,584 students with diabetes. In addition to identifying these students, school nurses develop individual health care plans and train school staff members to give necessary medications and perform medical procedures ordered by health care providers.

School nurses provided more than 80,000 health counseling sessions to students and staff and more than 30,000 health education programs in group settings during 2008-09. They facilitated vision, hearing and dental screenings

conducted in schools. More than a half-million school children were screened for vision, and more than 33,000 students were seen by physicians or eye care professionals as a result of the referrals from school health professionals for comprehensive eye exams.

Nurses were authorized to process more than 30,000 orders for medication, and school nurses ensured that this was done in a safe manner.

School nurses work with their local School Health Advisory Councils (SHAC) to develop and implement local programs designed to prevent illness and promote health. The SHACs are mandated by the North Carolina State Board of Education Healthy Active Children Policy (GCS-S-000). They also assist with disaster/emergency planning for their communities. As the health needs of children in school continue to grow, so must the availability of school nurses, until the recommended ratio of 1:750 is reached and, ideally, there is at least one school nurse in every school in North Carolina.

## Methodology

This report is compiled from data submitted by school nurses, based on their knowledge of health services provided by school nurses and other health professionals in their schools. Information is on health services in North Carolina public schools only. It does not include data from state charter or residential schools, nor federal, private or parochial schools.

Data specialists and school nurse consultants in the N.C. Division of Public Health's

Children and Youth Branch developed the survey instrument and distributed it to School Health Program Supervisors in each school district (LEA: Local Education Agency) at the start of the 2008-09 school year. All 115 LEAs — 100 percent— participated in the data collection and submitted data onto the survey instrument electronically. The data was sorted by branch staff and analyzed by staff in the School Health Unit of the Children and Youth Branch.<sup>1</sup>

Additional data for this report was collected from other sources, including:

- North Carolina Department of Public Instruction
- North Carolina Department of Health and Human Services, Division of Public Health:
  - Women's and Children's Health Section
  - Oral Health Section
- The National Society to Prevent Blindness North Carolina Affiliate, Inc.
- North Carolina Child and Family Support Teams Initiative

Additional data is available for further review by request. Contacts:

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## DATA SOURCES

- <sup>1</sup> N.C. Annual School Health Nursing Survey: Summary Report of School Nursing Services 2008-2009  
N.C. Division of Public Health • Department of Health and Human Services  
Public Schools of North Carolina • Department of Public Instruction

## Introduction

For more than a dozen years, the North Carolina Division of Public Health has collected school health data from each school district. This report summarizes current data and provides information on trends.

The survey to the school health service programs also asks for comments regarding outcomes and successes during the past school year and goals for future years. This report includes a small selection of the accounts of successful outcomes; they are labeled “local outcomes.”

## Survey Population

### Profile of Students Enrolled in North Carolina Public Schools

North Carolina’s 1.41 million school children are as diverse as the state’s population. They come from all socio-economic backgrounds and an increasing number of ethnic backgrounds. The majority are male (51%) and white (54%). Other racial and ethnic populations in our schools are: black or African American, 31%; Asian, 3%; Hispanic, 11%; American Indian, 1%. They attend our 2,399 public schools in 115 educational districts (100 districts organized by county and 15 by city). An additional 35,131 students attend one of the 97 North Carolina public charter schools.

### Pre-kindergarten (Pre-K) Students

North Carolina state government and the federal government provide funding for students in pre-school programs. In the public schools, those students enroll in More at Four Pre-Kindergarten programs, Title I Preschool, and Exceptional Children Preschool. Because the North Carolina Office of School Readiness promotes the health and physical condition of children when they enter school as one of the indicators of school readiness, the state’s school

nurses serve those students as well. Many of the students in these programs are developmentally delayed, have disabilities, and/or have special health care needs. During this school year, the school nurses reported serving 21,533 pre-K students enrolled in their districts.

The preschool student enrollment is in addition to the enrollment in kindergarten through 12th grades, and is not counted in the formula that results in the school nurse-to-student ratio.

## Exceptional Children

Approximately 189,266, or 13 percent, of public school children in North Carolina are enrolled in Exceptional Children’s (EC) Programs. Intellectual, emotional and health impairments are among the disabilities that negatively impact a student’s learning to the degree that leaves them eligible for Exceptional Children services. Students in the EC program require the assistance of school nurses, as many of them have additional conditions beyond their primary disability that require health care plans, emergency action plans, and other health accommodations. Most school nurses care for these students in addition to students in regular education. A small percentage of school nurses, fewer than 2 percent, work only in the EC program.

## LOCAL OUTCOME

“Within a month after the school nurse coordinated an effort to enable a middle school child with spina bifida to become independent in [urinary care], the child became independent. “

All students eligible for EC services must meet criteria for one primary disability, and may meet criteria for additional disability services. This school year, “Other Health

Impairment” was the primary disability of 30,153 students, the 3rd most frequent among 16 classifications for primary disability. (The most frequent classification among students in EC programs in North Carolina was “Specific Learning Disability”; the 2nd most frequent was “Speech or Language Impaired.”) The state EC program classified another 6,042 students with these primary disabilities: “Traumatic Brain Injured,” “Severe & Profoundly Handicapped,” “Hearing Impaired,” “Orthopedically Impaired,” and “Multi-Handicapped.” With each student who has a chronic health condition, the school nurse is involved in planning, delegating and otherwise caring for the student.

School nurses often arrange for and provide general supervision of other nurses in the school setting. In some LEAs (19 this school year), private-duty nurses provided care to students who were medically fragile and needed care on a one-on-one basis during the entire school day.

## Profile of Nurses Employed in N.C. Public Schools

The school nurse is a registered nurse (RN) in a specialized professional practice that requires different educational preparation, experiences, skills and knowledge than that of nurses working in acute care or other community settings. The American Academy of Pediatrics has affirmed that the school nurse has a crucial role in the seamless provision of comprehensive health services to children and youth.<sup>2</sup> The Academy’s position statement of May 2008 states that increasing numbers of students enter schools with chronic health conditions that require management during the school day. School nurses provide preventive services, early identification of problems, interventions, and referrals that serve to improve health and educational outcomes. In North Carolina, the school nurse often functions as a member and occasionally as the coordinator

of the local School Health Advisory Council. School nurses are involved in each of the eight components of a Coordinated School Health Program: health services, health education, physical education, nutrition services, health promotion for staff, counseling and psychological services, healthy school environment, and family/community involvement.

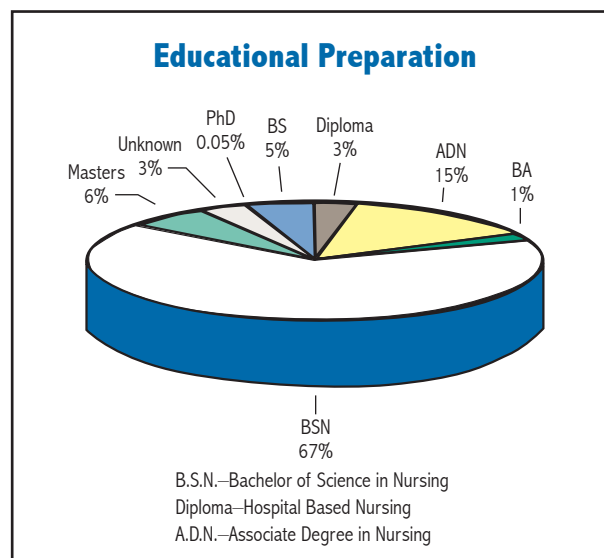
<sup>2</sup> American Academy of Pediatrics: Policy Statement “Role of the School Nurse in Providing School Health Services” May 2008

## LOCAL OUTCOME

“The nurse’s quick action may have saved the lives of two teachers at her schools – one with worrisome symptoms of an aneurysm, another with symptoms of a heart attack. [Both teachers are now doing well.] The doctor of the one with symptoms of a heart attack praised the nurse for prompt, appropriate first aid.”

## Educational Preparation of School Nurses

School nurses are registered nurses (RN) who are licensed by the North Carolina Board of Nursing. Educational preparation for entry into registered nursing is through one of three





routes: hospital-based diploma in nursing, community or technical college preparation for an associate degree in nursing, or bachelor's degree from a four-year college or university. Increasingly, nurses whose initial entry into registered nursing was at the diploma or associate-degree level have seen the need for more educational preparation and have completed bachelor's degrees in nursing or other health-related fields. School nurses must have the expertise required to meet increasingly complex health needs, and the skills and education to provide for the comprehensive range of services that school children require. National and state leaders promote the baccalaureate degree as minimum requirement for professional school nursing.<sup>3</sup> In North Carolina, more than 80 percent of school nurses report holding a baccalaureate degree or higher.

School nurses in North Carolina obtain continuing education activities offered through the nine regional Area Health Education Centers (AHECs), through a number of Colleges of Nursing, and through a network of state and regional school nurse consultants within the N.C. Division of Public Health. New school nurses learn their new roles and responsibilities through continuing education provided by the state Division of Public Health and its co-sponsors, as well as during orientation offered by their school district, health department or hospital employers.

<sup>3</sup> American Academy of Pediatrics: Policy Statement "Qualifications and Utilization of Nursing Personnel Delivering Health Services in Schools (RE7089)."

## National School Nurse Certification

The Department of Public Instruction requires that all school nurses hired by LEAs after July 1, 1998, hold national school nurse certification. Non-certified nurses hired after this date may be employed but must achieve certification within three years of date of employment. School nurses not employed by LEAs are encouraged, and in some cases required, through their funding partners, to obtain certification as a mark of achieving this increasingly recognized standard. Currently, slightly more

## LOCAL OUTCOME

"100% of the students being case-managed by a professional registered school nurse showed improvement in one or more of the areas addressed."

than half (50.1%) of North Carolina nurses working in public schools hold national school nurse certification from either (or both) of the national certifying bodies: the American Nurses Credentialing Center (ANCC) or the National Board for Certification of School Nurses (NBCSN). This rate is a nine percent increase from the previous school year. This increase can be attributed to several factors:

- the additional 45 nurses hired under the School Nurse Funding Initiative (SNFI) during the 2007-08 school year achieved certification during 2008-09 school year. (Many of the SNFI nurses were not certified when hired in 2007 and early 2008. It is recommended that school nurses experience a full year in the practice before attempting the certification examination);
- the work of the school nurse consultants in the School Health Unit providing educational support and encouragement; and
- the work of the Eastern AHEC (Allied Health Education Center), which sponsored an educational offering, which was revised to incorporate information in the 2008 textbook, "National School Nurse Certification."

School nurses in North Carolina, as a group, have many years of experience in school nursing as well as in prior practice settings. During the 2008-09 school year, 57 percent had more than 3 years' experience.

## Ratio of School Nurse to Students

The national recommendation for the school nurse-to-students ratio is 1:750 for the general student population; 1:235 for schools in which

the student population may require daily professional school nursing services or interventions; and 1:125 for students with severe and profound disabilities and complex health care needs.<sup>4</sup> Those are the ratios that would allow all students to have their health needs safely met while in the school setting, including appropriate preventative, health promotion, early identification and intervention services.

For this report, school nurse-to-students ratios were based on full-time equivalencies (FTEs<sup>5</sup>) of positions budgeted for school nurses to work in local education agencies (LEAs). School nurses working solely as administrators, without caseloads of students, were not counted in the FTE or ratio. Using that definition, there were

1,169.04 FTE budgeted school nurse positions during the just-completed school year. That total is 23 more full-time positions in the state during 2008-09 than during 2007-08.

The school nurse-to-students ratio varies widely across the state. At the end of the 2008-09 school year, the statewide average ratio of school nurse to students was 1:1,207. Thirty-nine LEAs met the target ratio of 1:750, no change from the previous year. The ratios during the 2008-09 school year ranged from 1:253 in Pamlico County to 1:3,309 in Davidson County. For a breakdown of school nurse to students ratio by LEA, see Appendix C, page 27.

<sup>4</sup> National Association of School Nurses, Position Statement, Caseload Assignments, Adopted 1972, Rev. 2006; See also CDC Healthy People 2010

<sup>5</sup> FTE = Full Time Equivalency for school nurse positions (37.5 or more hours/week=1.0 FTE)

### Student Population, School Nurse Staffing, and Nurse-to-Students Ratios

Number of:	School Year 2004-2005	School Year 2005-2006	School Year 2006-2007	School Year 2007-2008	School Year 2008-2009
LEAs	115	115	115	115	115
Schools*	2,182	2,227	2,338	2,354	2,399
Students**	1,332,009	1,363,695	1,386,363	1,404,957	1,410,497
School Nurse FTEs	836.06	867.86	1,034.00	1,146.51	1,169.04
Average N.C. School Nurse/ Student Ratio	1: 1,593	1:1,571	1:1,340	1:1,225	1:1,207

\* Public Schools of North Carolina, "Facts and Figures 2008-2009", February 2009

\*\* NC DPI. Final ADM. [www.dpi.state.nc.us/fbs/accounting/data](http://www.dpi.state.nc.us/fbs/accounting/data) Retrieved 7/20/2009

### LOCAL OUTCOME

"Our coordinated school health program has been selected by the CDC as one of six outstanding national programs (out of 80 evaluated)."

### Employers of School Nurses

School nurses are primarily employed by their local education agencies (LEA). The administrative responsibility for almost 70 percent of school health services programs in North Carolina lies within the LEA. The chart below shows the yearly increase in North Carolina public school nurses in the past five years. A relatively small number of school nurses are employed part-time.

### Number of Individual School Nurses (including part-time nurses)

	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009
School Nurses	903	932	1,083	1,266	1,231

### Administrative Responsibility for School Nursing Services

Fiscal Agent	Percent of school districts (LEAs)
Local Education Agency (LEA)	70%
Health Department	16%
Hospital/ Health Alliance	4%
Funding from a combination of sources	10%

### Funding for School Nurses

Although the local school board, or LEA, is the primary employer of North Carolina school nurses, the money for school nurses comes from a wide variety of sources. Rarely is the entire school health services program funded through a sole source. Funding sources include: local tax revenue, through property taxes allocated to the local school and local health department; North Carolina General Assembly appropriations, such as through distributions from the state Department of Public Instruction and state Division of Public Health; federal reimbursement, including approved Medicaid expense reimbursements or federal Title V grants and categorical funds; hospitals; health care organizations and private foundations.

In recognition of the enormous health needs of school-age children and the relationship between health and academic success, the North Carolina General Assembly has appropriated funds through the School Nurse Funding Initiative (SNFI), which began in the 2004-05 school year. These funds are distributed by the Division of Public Health to local health departments, local education agencies, and hospitals employing school nurses.

In 2005 the Child and Family Support Teams Initiative was initially authorized and funded

by the NC General Assembly. It was reauthorized in the 2007 and 2009 state budgets. The initiative provides recurring state funds to team 100 school nurses with an equal number of school social workers at 102 schools in 21 school districts across the state. The purpose of the Initiative is to provide school-based professionals to screen, identify and intervene for children who are potentially at risk of academic failure or out-of-home placement due to physical, social, legal, emotional or developmental factors.

Through these state and local efforts to increase funding for school nurses, the number of LEAs meeting the recommended ratio of 1:750 has nearly quadrupled in the five years between the 2003-2004 and 2008-09 school years

Student enrollment in North Carolina public schools increased this past school year by 5,540. The labor demand for all nurses, including qualified school nurses, has grown rapidly in recent years. School health program supervisors, 47 of whom are registered nurses, re-doubled efforts to attract and retain school nurses. In this past school year, they succeeded in filling 99 percent of all school nurse positions.







## School Health Services

School nurses provide basic and comprehensive school health interventions to all children in the population served, including children with special health care needs resulting from acute and chronic complex medical conditions.

### LOCAL OUTCOME

“One of my students has sickle cell and a history of sub-standard care at the African country from which he emigrated. He was crippled. The student had no insurance nor Medicaid. He began to enter a pain crisis. One day, he lay out in a ditch in front of the school and sobbed because of the pain. [The student’s family was unable to receive help at a number of clinics and hospitals due to insurance status.] I called my contact [at county human services] and she did some checking and found another center had a “new patient” appointment the very next day. The staff was able to get the student seen at hospital clinic without insurance. I then worked with the student’s family to help him obtain insurance. This spring, the student became a U.S. citizen and has insurance. He is scheduled for surgery to correct his legs. His pain is now well-managed. The student stops by my office often just to say hello. His father cried while thanking me for the help I gave.”

and school staff to reduce the negative impact of illness on learning. Nurses serve as case managers, evaluate activities of daily living, and develop appropriate modifications for the learning environment. The percentage of public school students with chronic health conditions has risen almost every year for the past decade. The number and percent of students with reported chronic health conditions are illustrated in the table below.

Asthma, a major chronic illness among school children, is the leading cause of school absenteeism nationwide, according to national experts on lung disease. The number of North Carolina students reported with asthma – 75,576 – according to the school nurse reports, shows a 13 percent decrease (down 10,861 students from the prior school year). The lowered overall total includes some school districts with higher reported number than last year and some with lower. The North Carolina Division of Public Health Asthma Program has not seen similar reduction in number of children of school age with reported asthma. It is important to note that this report *does not report total incidence; it reports student health conditions that are known to and reported by school nurses*. The reduced count may reflect a change in the working definition of asthma among school children that school nurses use. School nurses are encouraged to count students with current asthma and who need medication either at school or at home, if known. School nurses are discouraged from counting those whose asthma is described by parents vaguely, such as “asthma as an infant” or “only when he has a cold,” and this report may reflect removal of some students from a school nurse’s list of students with asthma. The lower number may also be an outlier that will adjust itself in future years’ reports.

Similarly to a lowered count of students with reported asthma, fewer students were reported with severe allergies than in the previous school year. Severe allergies are those for which a

## Chronic Health Conditions

An increasing number of students with chronic health conditions attend school. Since these conditions can affect attendance, school performance, and the students’ level of well-being, school nurses work closely with students, their families, health care providers

student carries or is provided medication at school, such as peanut allergies or insect sting allergies. This past school year, 18,439 were listed as having severe allergies, 1,093 fewer than during school year 2007-2008. Whether this reduced count reflects a trend or a single outlier remains to be seen.

In North Carolina public schools, students with asthma and allergies may carry and administer their own asthma medications after identifying the need to school administration and health professionals. Students who are self-medicating for asthma should seek the help of a school nurse to assist them in case of emergency or inability to self-administer the medications.

There was a six percent rise in the number of students enrolled who were reported with diabetes: 4,584. In response to the increasingly complex needs and high technology related to school-day management of diabetes, school nurses train staff to care for students with diabetes. The staff training includes training of diabetic care managers, a school function established by the General Assembly in 2003, and development of diabetic care plans – individual health plans for students with diabetes who need care during the school day. Students with diabetes are encouraged to self-manage their symptoms, which will most likely last their lifetime. School staff members assist students as needed.

*For a more extensive list of the types of chronic health conditions that were managed at school, see Appendix A, page 25.*

## Diabetes:

- 4,584 students reported with diabetes
- 3,548 monitor blood glucose at school
- 2,101 receive insulin injections at school
- 1,544 manage insulin pumps
- 2,527 are known to self-carry their medication

## LOCAL OUTCOME

“Two newly diagnosed adolescents with diabetes were defiant and non-compliant. After intensive nursing intervention, they made significant progress in independence and avoided hospitalization.”

### Number and Percent of Identified Chronic Health Conditions

School Year	Number and Percent
98-99	95,035 (8%)
99-00	114,765 (9%)
00-01	131,589 (11%)
01-02	129,329 (10%)
02-03	121,877 (10%)
03-04	161,559 (12%)
04-05	197,052 (15%)
05-06	209,718 (15%)
06-07	227,940 (17%)
07-08	237,245 (17%)
08-09	240,528 (17%)

## School-based, School-linked Health Centers

Adolescents, who are often less likely to see a physician for routine check-ups, in some school districts have access to medical care on the school grounds or nearby. A few even operate from traveling vans or buses to serve several schools. In school year 2008-09, as in the previous year, there were 52 school-based, school-linked health centers operating in more than 20 of the state's counties.

Different from a school nurse's services, access to these centers is limited to those with parental permission. Centers provide primary care and preventive clinical services during the school day, minimizing interruption of the student's

time in class and increasing likelihood that the student is healthy and ready to learn.

Centers depend on a combination of government appropriations, patient revenues, private foundation funds/donations and in-kind resources to support the health services that they provide. The majority – 28 – are partially funded by the N.C. Division of Public Health. These funds are used to leverage additional resources at the local level. Partners in these centers include N.C. Department of Public Instruction, N.C. Division of Medical Assistance, families, private medical practices, local health departments, and the N.C. School Community Health Alliance (NCSCHA).

Information below represents reports submitted by the 28 centers that receive partial funding from N.C. Public Health. Additional information on school based health centers may be obtained from the NCSCHA website, [www.ncscha.org](http://www.ncscha.org).

During 2008-09 school year:

- 16,626 students had parent/guardian permission to utilize all services of the school based health center.
- Among those students, there were 85,984 student visits, an average of five visits per student during the year.

- Students were seen by a variety of health care providers, including medical doctors; registered dietitians; behavioral and mental health professionals; and certified nurse practitioners.

## Pregnancy

Three hundred fewer students were known to experience a pregnancy this school year, as reported by school nurses. Although 4,660 adolescent pregnancies is a serious concern, this 5 percent decrease from the previous year is an encouraging outcome as it follows several years of increasing pregnancy rates in the schools. This percentage decrease correlates closely with the 7 percent decrease in teen pregnancies reported for 2008 by the October 2009 report of the Adolescent Pregnancy Prevention Coalition of North Carolina (APPCNC). The percentage decrease was greatest in elementary grade levels (50%) although the absolute number is relatively low, with a decrease of 27 percent among middle school females and a decrease of 3 percent among high school females. Although the majority, 77 percent, managed the pregnancy well enough to remain in school during normal school hours, 23 percent of students, either in the prenatal or postpartum period, received home-bound instruction for a time during their pregnancy.

## LOCAL OUTCOME

“The school nurse met with a distraught pregnant teen who had just been ‘kicked out’ of her second home. The nurse met with the student and parent mentor from the Y to arrange temporary housing and transportation to school and medical care. The appropriate referrals were made for a more permanent arrangement.”

### Status of School Enrollment for Students Known to be Pregnant

	Elementary	Middle School	High School	Total
Known pregnancies	2007-2008: 14 2008-2009: 7	2007-2008: 409 2008-2009: 300	2007-2008: 4,481 2008-2009: 4,353	2007-2008: 4,904 2008-2009: 4,660
Students receiving homebound instruction due to pregnancy (08-09)	3	57	1,338	1,398

School Year	Pregnancies reported to school staff	% increase or decrease from previous year
1996-1997	2,089	N/A
1997-1998	2,830	35%
1998-1999	2,721	4% decrease
1999-2000	3,316	22%
2000-2001	2,914	12% decrease
2001-2002	2,919	0.1%
2002-2003	2,697	8% decrease
2003-2004	3,131	16%
2004-2005	3,406	9%
2005-2006	4,072	20%
2006-2007	4,422	9%
2007-2008	4,904	11%
2008-2009	4,660	5% decrease

## Suicide and Homicide

Intentional death of students, either through suicide or homicide, is a public health concern. Although the number is small by comparison with the adult population, the loss of a student through homicide or suicide is a traumatic event for the entire community.

In North Carolina schools this past year, fewer students died as a result of suicide or homicide. According to reports from the LEAs, 17

public school students died through homicide, a 4 percent decrease from the prior year. Suicide and attempted suicide also were down from the previous year, according to school health reports. Suicide was reported to be attempted by 422 students, a decrease of 7 percent (from 455) from the prior year. There were fewer deaths by suicide: 15 in 2008-09. None of the deaths, either by suicide or homicide, occurred at school.

### Death by Suicide/Homicide: School year 2008-09

	Elementary	Middle School	High School	Total
Deaths from suicide	0	1	14	15
Suicides occurring at school	0	0	0	0
Death from homicide	3	3	11	17
Homicides occurring at school	0	0	0	0

### Known / Reported Suicide Attempts: School year 2008-09

	Elementary	Middle School	High School	Total
Attempts by grade level	35	94	293	422



## L O C A L O U T C O M E

“The nurse and the counselor recognized signs of suicide in a student with severe medical problems and depression. After a referral and proper medication, he is doing much better.”

## Student Tobacco Use

Effective Aug. 1, 2008, all schools must adopt, implement, and enforce tobacco-free<sup>6</sup> school campus policies. In addition to state law and school policy, schools communicate tobacco-free messages to young people through health education programs, social marketing messages, cessation classes for students or staff, and through the day-to-day modeling and interactions among staff and students. School nurses also offer classes and programs to reinforce restrictions against smoking and to encourage cessation.

## L O C A L O U T C O M E

“As a result of programs and counseling by the nurses and others, the tobacco and substance abuse percentages were decreased this year, according to the YRBS survey.”

## Health Counseling

Students contact the school nurse for answers to questions ranging from normal growth and development to serious emotional and mental health concerns requiring referrals to mental health professionals. During the 2008-09 school year, the number of such encounters reported by school nurses increased 22 percent, from 65,000 during 2007-08 to 80,000 last year. The single greatest percentage increase, 49 percent, was for individual counseling to middle-school-age students about sexual and reproductive health, including puberty and personal hygiene. The other categories for which individual counseling session numbers went up across all grade levels were for child abuse or neglect; substance abuse, and tobacco use. Individual discussions around depression/suicide went down across all grade levels.

## Individual Health Counseling Sessions

Counseling Topic	Elementary	Middle	High	Total	Percent change in total counseling 2007-08 to 2008-09
Child Abuse/Neglect	2,133	877	805	3,815	21%
Depression/Suicide	751	2,004	3,824	6,579	-27%
Grief/Loss	1,188	1,048	2,075	4,311	3%
Pregnancy	83	1,317	9,254	10,654	10%
Puberty / Hygiene / Reproductive Health	15,004	13,738	12,665	41,407	49%
Substance Abuse	323	828	2,677	3,828	44%
Tobacco Use	315	1,051	2,770	4,136	15%
Violence/Bullying	1,704	1,922	1,644	5,270	-7%
<b>Total</b>	21,501	22,785	35,714	80,000	22%

<sup>6</sup> School policy totally prohibits tobacco use for all students, staff, and visitors in the school buildings and extends to the entire campus, vehicles, and all school events including outdoor events. The policy extends to hours after regular classroom schedules, 24 hours a day, seven days a week and includes off-campus school sponsored student events.

## Health Teaching

School nurses were involved in a variety of health teaching and instructional sessions to groups and in classrooms. Classroom instruction included short presentations on such topics as hygiene, first aid, wellness and fitness promotion, *Open Airways* and other asthma management programs, AIDS peer education, smoking prevention and cessation, violence prevention, puberty, and prenatal and parenting programs. Instruction to faculty and staff included the topics of medication administration, infection control, OSHA blood-borne pathogen regulations, CPR, use of AEDs, first aid, and chronic disease management, including general training on the signs and symptoms and first aid for diabetes, and intensive training for the care of individual students with diabetes. The nurses also conducted health fairs and made presentations to parent organizations, school boards, and civic and community groups. All in all, the nurses reported providing **30,206 programs and presentations** during the 2008-09 school year, up 17 percent from the previous school year.

- 43 LEAs (37%) have asthma education programs for staff.
- 51 LEAs (44%) have asthma education programs for students.

Often, the school nurse is the first health care provider that the student sees. In some cases, the nurse is the only health care provider the student sees for minor illnesses and injuries. Last school year, school nurses managed nearly 50 percent more individual encounters with

## LOCAL OUTCOME

“One child was absent with asthma very frequently; he took my ‘Open Airways’ class, and dad started taking him to the doctor more appropriately; he was started on a different medication and only missed 2 more days due to asthma the rest of the year.”

students to assess and manage an illness or injury that originated at home. It is not known whether the health insurance status or economics of those families caused this increase in using the school nurse for primary care. During the 2008-09 school year, nurses evaluated at school more than **257,628 student injuries and acute illnesses that had originated outside of school, up from 172,734 the previous year.** In addition to providing care and guidance, nurses assist families by locating medical and dental resources and referring students to providers for the diagnosis and treatment of a wide variety of health problems.

## Health Care Treatments and Procedures at School

Some students with chronic illnesses, physical handicaps and/or disabilities require health care procedures to be performed during the school day. The nurses reported processing orders for at least **29,705 individual medical treatments or procedures, an increase of 5,542, or nearly 25 percent, in orders over the previous year. The increase reflects increased numbers of cases and/or increased use of medications and treatments during the school day.**

## LOCAL OUTCOME

“I am case-managing an eight-year-old child with diabetes. By spring, his A1C improved two points from the beginning of the year, and he is now able to recognize and articulate the signs and symptoms of hyper and hypoglycemia. He is able to administer his own injection, using excellent technique, and usually does not require any verbal cues.”

### Number of Specified Health Care Procedures (partial list)

Health Care Procedure	Total
Central Venous Line	38
Diastat (rectal diazepam [Valium®])	1,316
Glucagon Injection	2,365
Nebulizer Treatments	1,948
Shunt Care	181
Tracheostomy Suctioning & Cleaning	99
Tube Feeding	560
Use of Epi-pens	9,595
Bladder Catheterizations	314

Orders for emergency treatments for seizures and severe allergies continued to increase this school year, leading all other increases for specific health care procedures. The orders for Diastat®, a medication used to treat sudden and prolonged seizures, increased 16 percent during school year 2008-09. It is important to note that the number of students for whom Diastat is ordered does not necessarily mean that the medication, which is administered rectally, was given. It is usually prescribed for prolonged, intractable seizures, and seizures among school-age children, once diagnosed and under medical management, may rarely manifest themselves in school to this degree.

Orders for injectible epinephrine (EpiPen®) for severe allergies increased 8 percent, following a 35 percent increase in the previous two school years.

Orders for injectible glucose (Glucagon®) for diabetes remained essentially unchanged at 2,365 during school year 2008-09, in contrast to a combined 31 percent increase in the numbers of orders between the two school years from 2006 through 2008.

Orders for the other health care procedures listed remained essentially unchanged from the prior year.

As stated, an existing order for a treatment or procedure indicated “as needed” rather than routinely administered, may not, on any single child, need to have been administered during the school year or during the school day. In future years’ reports, the data will include how often some of these emergency drugs were administered.

### LOCAL OUTCOME

“I referred one of my asthmatic students with frequent flares to the doctor. He was referred to an allergy specialist and was found to have several food allergies. He is doing much better since those foods have been eliminated from his diet.”

### Medicating Students

Administration of medications to students by school staff is a serious responsibility requiring conscientious attention to giving the correct medication in the correct dose to the correct student every time. Secretaries, classroom teachers, and teacher assistants are primarily the school staff members who administer routine medications on a daily basis in the majority of school systems in North

Carolina. To ensure that school staff perform this task with safety and accuracy, it is essential that a school nurse be available to review and participate in the development of school policy and procedures; train and supervise teachers and other staff about all aspects of giving medications correctly; and serve as coordinator among parents, medical providers, and the school. In nearly all of the LEAs, school nurses provided formal training programs for school employees who were designated to administer medications. They also conducted periodic audits of medication charts and records to assure compliance with all physician and parent orders and to assess the students' responses to medication therapy.

During the 2008-09 school year, nurses reported that **30,034 medications were given daily to students while at school, a number essentially unchanged from the previous year.** Some received medication daily on a long-term basis (20,766) for chronic conditions, and others for a shorter duration (9,268), such as to treat an infection. Medications received most frequently on a daily basis included psychotropic controlled substances, including Ritalin®, Dexedrine®, and Lithium®.

However, there was a 24 percent increase in the number of medications ordered on an "as-needed basis" either for serious conditions such as severe allergies, diabetic episodes, and acute asthma episodes, or for less serious conditions such as temporary pain from a procedure or injury.

The 24 percent increase in the numbers of these medication orders – from 39,985 to 49,456 – is of concern to school health professionals and pediatricians if the increase reflects frequent use

of over-the-counter (non-prescription) drugs for temporary and/or mild conditions. The American Academy of Pediatrics recommends that school children take medication at school only when necessary and when the medication cannot be given at home. (American Academy of Pediatrics, October 2009, position statement) Since a number of over-the-counter drugs can cause side effects or mask serious illnesses or conditions, state recommendations are to discourage unlimited use of non-prescription medications for school children and require not only parental authorization but also medical provider authorization for any medications given in school during the school day, whether or not a prescription is required for the product. Over-the-counter drugs given in some school districts include antihistamines such as Claritin® and Benadryl®, pain relievers such as Advil® and Tylenol®, anti-acids such as Tums®, sunblock products, cough drops and others. While no more than approximately two percent of the student population at any particular time is taking a medication that is ordered for every day at the same time, school nurses are managing nearly twice that number, nearly 50,000, medications that are ordered "as needed". Determining whether the student is describing a situation that requires that "as-needed" medication involves interviewing the student, assessing the situation, and deciding on a course of action. The school nurse often trains a non-health care professional, also called "Unlicensed Assistive Personnel," to handle those student medication situations. Additional school nurse involvement may be needed when a medication is ordered with parameters, such as "one or two pain relievers depending on pain level," or two types of allergy medications depending on relief obtained by the primary medication.

## LOCAL OUTCOME

"A student in alternative school previously scored 'ones' on EOGs. He was referred to the school nurse for possible ADD. The nurse was responsible for getting the student referred and on medication, and the student scored two 4's and a 3 on this year's EOG tests."



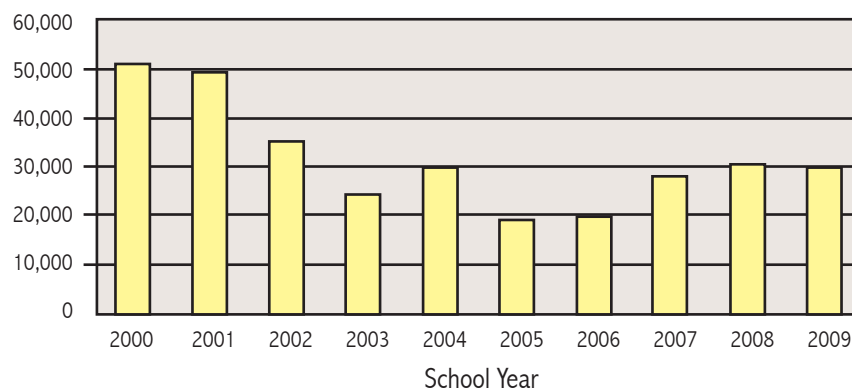
The following table and graph provide a 10-year overview of the numbers and percentage of students receiving medications as reported by school nurses. There is a notable **decrease** in numbers of **daily** medications during this decade, by nearly 50 percent, and an **increase** in those given intermittently for episodes or symptoms. This shift can be attributed

to a change in dosage from short-acting to longer-acting formulas for a variety of conditions and to a rise in the numbers of medications for episodic conditions such as asthma, seizure, allergy, or chronic conditions that flare up. This change has held steady over the past few years.

### Number and Percent of Students Receiving Medications Administered at School

School year	# Students	Daily Medications	Non-Daily (Intermittent) Medications
1999-2000	1,237,794	50,554 (4%)	N/A
2000-2001	1,243,442	49,303 (4%)	N/A
2001-2002	1,271,995	35,319 (3%)	N/A
2002-2003	1,279,468	24,477 (2%)	N/A
2003-2004	1,311,163	29,321 (2%)	N/A
2004-2005	1,332,009	19,541 (2%)	N/A
2005-2006	1,363,695	19,772 (1%)	N/A
2006-2007	1,386,363	27,990 (2%)	N/A
2007-2008	1,404,957	30,433 (2%)	39,985 (2.2%)
2008-2009	1,410,497	29,814 (2%)	49,456 (3.5%)

### Number of Students Receiving Daily Medications at School



## Health Care Coordination and Case Management

The school nurse's role often extends beyond the school setting. Children with chronic or serious acute illnesses and conditions often require frequent daily nursing interventions and case management to enable them to remain in school. School nurses utilize a variety of strategies to communicate with all those involved in the care of a student. Nurses serve as liaisons with physicians, dentists, community agencies and families while supporting and caring for the health needs of students. Among the strategies school nurses enlist to provide health care coordination and case management is making visits to the homes of students. More than **13,574 home visits** were conducted during the 2008-09 school year to assist families with student health issues. This number reflects an increase of almost 10 percent, or 1,229 more home visits.

support, psychosocial intervention, and documentation and evaluation. Through collaboration with a research project at East Carolina University, school nurses are finding additional evidence for comprehensive management of students with chronic health conditions. In addition, case management is part of the North Carolina Child and Family Support Teams Initiative. Regardless of the model used, coordination of care of a student with special health care needs serves to increase a student's ability to manage the condition in school, with a goal of increased educational achievement and improved health outcomes.

### LOCAL OUTCOME

"The school nurse did such a good job applying a butterfly bandage to a gaping wound on a students' elbow, that the doctor said there would be no need for stitches."

### LOCAL OUTCOME

"Two students were case-managed for bipolar and depression/anxiety problems. Both felt very trapped and hopeless, and felt their conflicts were not ever going to improve when I started working with them. By the end of the year, both students had gone through medical treatments and family counseling which did actually help reduce conflicts; grades improved in both cases, and they felt an increase in self esteem. One student is graduating and going into nursing school and is looking forward to college and moving out of state. "

Case management has been found to be a useful model through which to coordinate a student's health care. In nearly a fifth of the school districts (22), the process has been formalized into a Case Management Program with core components of assessment, health care management, community resources and

## Emergency Care

Injuries and illnesses are common occurrences in the school-aged population. Because the majority of school nurses cover more than one school building, few schools have a school nurse on duty during the entire school day. Therefore, school nurses must assure that school personnel are trained to provide first aid in emergencies. **Sixty-five percent** (75 of 115) of the LEAs reported having First Responders available daily in each school building.

Many minor incidents occur to students and staff during the course of the school day and are often handled by teaching and office staff. School nurses are frequently required to assist with major injuries, of which there were more than 20,932 this past year, a slight decrease of about 1,000. Serious injuries are defined as medical emergencies requiring an Emergency Medical Service (EMS) call or immediate medical care plus the loss of one-half day or more of school.

Of the serious injuries reported, most occurred on the playground or school sports fields (27%) and in physical education (27%), and another 25 percent occurred in the classroom. For a complete breakdown of type and place of injury, refer to Appendix B on page 26.

Two students died from their injuries, and both deaths were related to high school football. Eleven students were permanently disabled, with disabilities ranging from permanent nerve damage, to loss of a digit, to reduced brain function. More of the injuries involved law enforcement this year: 1,048 compared to 821 in school year 2007-2008.

### Services by NC Oral Health Section Staff

The Oral Health Section (OHS) of the North Carolina Division of Public Health is the only program that develops and implements a statewide program of school-based dental services, with an emphasis on children, to reduce tooth decay and promote oral health. OHS public health dental hygienists, primarily state funded, working in elementary schools throughout the state, provide dental screenings, referrals, follow-up, and education, as well as preventive dental sealants and fluoride mouthrinse for low income children at high risk for tooth decay. School nurses in many counties collaborate on a number of dental

health services, including sealants, fluoride mouthrinse and follow-up for care. For more detailed information, see the 2008-2009 Oral Health Section Annual Report, available at [www.oralhealth.ncdhhs.gov](http://www.oralhealth.ncdhhs.gov).

### Health Screening, Referral, Follow-up, and Securing Care

Voluntary mass screenings by grade or school are often conducted with the assistance of trained volunteers or other health professionals (example: audiologists, dental hygienists, and speech/language pathologists).

Vision screenings are conducted by school nurses as well as by other school staff and volunteers. School nurses follow up on those referred for vision examination and in many cases are the persons who locate sources of free care for those unable to afford treatment.

Significant numbers of students who were referred to a dentist or doctor based on the screening process did not or were not able to secure that care from a health professional. Additional staff, to provide appropriate follow-up and care management services for students, may reduce this gap in the completion of the screening process. In some situations, securing additional health care providers may also reduce the gap.

## LOCAL OUTCOME

"The nurses quickly secured funds for students needing eye exams and glasses before the end-of-grade tests. More families are having financial struggles, and nurses continue to assist them on a one-by-one basis."

### Number of Students Screened

Screening	Screened	Referred	% Referred	Secured Care	% Secured Care
Blood Pressure	12,846	398	3%	341	86%
BMI	30,991	2,485	8%	50	2%
Hearing	139,245	4,207	3%	2,629	62%
Vision	529,442	44,681	8%	33,021	74%

Screening for vision is the most frequent school screening program in North Carolina. More than half a million North Carolina school children – 38 percent – had their vision checked for possible eye problems. The school vision screening program is an example of the highly collaborative intersections among school health professionals, non-profit organizations, volunteers and health care providers.

One indicator of the success of a school health screening program is the percent who secured care – how many of the students who did not pass a screening and therefore were referred for further evaluation, actually completed the process by seeing a health care provider for the condition? Among the health conditions

for which school nurses screened during the 2008-09 school year, blood pressure screenings had the best “secured care” rate, nearly 86 percent. Screening for vision achieved a 74 percent successful completion rate. The lowest rate for securing follow up to a referral was for BMI (body-mass index), as only 2 percent of those referred reported they had seen a health care provider for further evaluation. Increased efforts to find health care resources for school children, and better response by parents, combined with additional school health personnel, could significantly increase the outcome that any screening program is designed to deliver: professional evaluation and treatment, if needed, for the identified condition.

### LOCAL OUTCOME

“A student’s parent was concerned about an eye injury that occurred over the weekend. After her assessment, the nurse was so concerned that she . . . got him an appointment the next day with an ophthalmologist who started antibiotic therapy and got him to a plastic ocular surgeon in a neighboring city. The area is healing nicely now without permanent damage to the eye or surrounding area.”



## Health Policies

Policies are essential to guide the development and implementation of coordinated school health programs. All local health departments in the state develop an agreement, the Memorandum of Agreement (MOA), with each school district in their jurisdiction. These MOAs are locally developed and provide an avenue for collaboration on school and health policies and procedures.

## LOCAL OUTCOME

"We were able to implement an AED policy and place an AED in each of our high schools."

School policies guide school nursing practice, provide parents a consistent method of communicating those policies, and provide students and staff assurance of health and safety. School nurses cited the presence of written, school board approved policies in the following key areas:

Health Policy	% of LEAs with board approved policy
Medication administration	99%
Prevention and control of communicable disease	98%
Provision of emergency care	82%
Screening, referral and follow-up	59%
Maintenance of student health records	69%
Identification of students with acute or chronic health care needs/ conditions	62%
Non-school bus transportation for students with health care needs	37%
Special health care services (State Board Policy GCS-G-006-.0402)	83%
Response to Do Not Resuscitate (DNR) order	30%
Reporting student injuries	63%



## Community Involvement in School Health Services

Community involvement contributes to the quality and effectiveness of school health programs and services. School nurses encourage and promote community involvement through:

- establishment of school health advisory councils,
- development of inter-agency planning and written agreements,
- recruitment of local physician advisors, and
- development of parent-teacher (PTA/PTO) health subcommittees.

All of the local education agencies reported having School Health Advisory Councils (SHACS). These multi-disciplinary councils are required by State Board of Education policy # GCS-S-000. Nearly all of the SHACs have a school nurse among the council members (113 of 115) and 53 SHACs have a physician serving on the council.

Nearly two-thirds (72, or 63%) of the LEAs are able to consult with a physician regarding the school health program. Most of the physicians who serve in that capacity – 32 – work in family practice settings, and 26 are pediatricians.

## Conclusion

School health services are just one component of a Coordinated School Health Program. Through collaboration with multiple partners in health and education, school health professionals work to positively impact the full range of experiences students encounter. By working with the North Carolina Division of Public Health, North Carolina Division of Medical Assistance, North Carolina Department of Public Instruction, the North Carolina Pediatric Society, the North Carolina Dental Society, Prevent Blindness North Carolina, the North Carolina School/Community Health Alliance, and many others, school nurses help students achieve at levels they might not otherwise achieve. As the number of school nurses in this state increases, it is expected that school nurses will demonstrate increased positive impact through improvements in student attendance, health and academic outcomes.





## Appendix A: Chronic Health Conditions, School Year 2008-09

Condition	Elementary	Middle	High	Total
ADD/ADHD	30,672	14,996	10,875	56,543
Addison's Disease	287	85	122	494
Allergies (severe)	11,237	3,421	3,781	18,439
Anorexia/Bulimia	276	161	317	754
Asperger's Syndrome	860	450	380	1,690
Asthma	43,447	17,038	15,091	75,576
Autistic Spectrum Disorders (ASD) except Asperger's Syndrome	3,363	1,005	1,030	5,398
Cancer	669	281	418	1,368
Cardiac condition	2,025	991	1,336	4,352
Cerebral Palsy	1,290	496	599	2,385
Cystic Fibrosis	1,096	428	420	1,944
Cytomegalovirus	125	59	63	247
Diabetes Type I	1,155	904	1,348	3,407
Diabetes Type II	289	366	522	1,177
Down's Syndrome	708	206	307	1,221
Gastrointestinal disorders	2,025	1,115	1,142	4,282
Genetic conditions	1,040	447	521	2,008
Hearing Impaired	1,754	771	736	3,261
Hemophilia/Bleeding disorder	278	171	168	617
Hepatitis B	302	318	298	918
Hepatitis C	65	29	43	137
Human Immunodeficiency Virus (HIV)	110	92	85	287
Hypertension	269	287	592	1,148
Hypo/Hyperthyroidism	232	201	268	701
Migraine headaches	2,846	2,674	3,490	9,010
Multiple Sclerosis	131	59	97	287
Muscular Dystrophy	148	70	99	317
Neuromuscular Condition	981	430	449	1,860
Orthopedic disability (permanent)	1,037	636	741	2,414
Psychiatric Disorder	3,086	2,077	2,951	8,114
Renal Condition	806	493	487	1,786
Rheumatoid Arthritis	225	124	214	563
Seizure Disorder	4,384	1,660	1,870	7,914
Sickle Cell Disease	962	358	451	1,771
Spina Bifida	4,085	2,175	1,152	7,412
Substance Abuse	11	126	1,085	1,222
Traumatic Brain Injury	1,311	536	447	2,294
Visually Impaired	1,591	458	956	3,005
Other	2,259	913	1,033	4,205
<b>Total</b>	<b>127,437</b>	<b>57,107</b>	<b>55,984</b>	<b>240,528</b>



## Appendix B: Reported Injuries in North Carolina Public Schools Requiring EMS Response or Immediate Care by Physician/Dentist AND Loss of 1/2 Day or More of School, School Year 2008-09

Type of Injury	Bus	Hallway	Classroom	Playground	PE Class	Shop	Restroom	Lunchroom	Other	Total #	Total %
Abdominal/internal injuries	8	16	47	103	60	0	7	7	23	271	1%
Anaphylaxis	2	6	91	50	10	0	1	37	34	231	1%
Back Injuries	15	43	39	126	130	2	6	5	32	398	2%
Dental Injury	17	49	129	329	190	1	8	20	33	776	4%
Drug Overdose	2	8	97	12	2	1	22	2	46	192	1%
Eye Injuries	15	51	304	239	212	41	5	27	44	938	4%
Fracture	20	118	164	1114	742	10	17	20	234	2,439	12%
Head Injuries	56	182	297	665	583	5	61	44	154	2,047	10%
Heat Related Emergency	5	6	23	114	86	0	4	3	26	267	1%
Laceration	50	180	530	720	499	84	77	34	155	2,329	11%
Neck Injuries	13	2	11	31	36	0	2	1	14	110	1%
Psychiatric Emergency	7	38	476	17	12	0	27	6	68	651	3%
Respiratory Emergency	20	37	993	319	272	4	6	21	99	1,771	8%
Seizure	45	114	949	60	47	4	20	55	85	1,379	7%
Sprain or Strain	63	239	346	1458	2554	15	29	53	334	5,091	24%
Other	94	119	705	349	296	11	40	73	355	2,042	10%
Total #	432	1,208	5,201	5,706	5,731	178	332	408	1,736	20,932	100%
<b>Total %</b>	<b>2%</b>	<b>6%</b>	<b>25%</b>	<b>27%</b>	<b>27%</b>	<b>1%</b>	<b>2%</b>	<b>2%</b>	<b>8%</b>	<b>100%</b>	

## Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2008-09

County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Alamance-Burlington	1,004	Forsyth	1,930
Alexander	1,020	Franklin County	1,072
Alleghany +	747	Gaston	1,524
Anson +	436	Gates +	748
Ashe	1,069	Graham +	480
Avery	1,115	Granville County	1,757
Beaufort	1,784	Greene +	480
Bertie +	480	Guilford	2,241
Bladen	1,135	Halifax County +	533
Brunswick	1,167	Roanoke Rapids City +	729
Buncombe	1,539	Weldon City +	491
Asheville City	1,053	Harnett	2,005
Burke	1,240	Haywood	1,041
Cabarrus	1,000	Henderson	1,552
Kannapolis City +	718	Hertford +	632
Caldwell	1,189	Hoke	835
Camden +	628	Hyde +	314
Carteret	1,189	Iredell-Statesville	1,410
Caswell	1,039	Mooresville City	1,075
Catawba	1,023	Jackson	1,098
Hickory City	893	Johnston	2,249
Newton Conover +	708	Jones +	699
Chatham County	1,309	Lee County	1,148
Cherokee +	636	Lenoir	1,552
Chowan +	594	Lincoln	1,620
Clay +	691	Macon	863
Cleveland	1,261	Madison	1,296
Columbus	1,128	Martin +	650
Whiteville City Schools +	601	McDowell +	735
Craven +	729	Mecklenburg	1,062
Cumberland	2,080	Mitchell	1,061
Currituck +	566	Montgomery County	866
Dare +	477	Moore County	1,741
Davidson	3,309	Nash County	953
Lexington City Schools	759	New Hanover +	688
Thomasville City Schools	846	Northampton County +	668
Davie	923	Onslow	1,168
Duplin +	645	Orange County +	558
Durham County	1,361	Chapel Hill/Carrboro +	689
Edgecombe County	1,204	Pamlico +	254

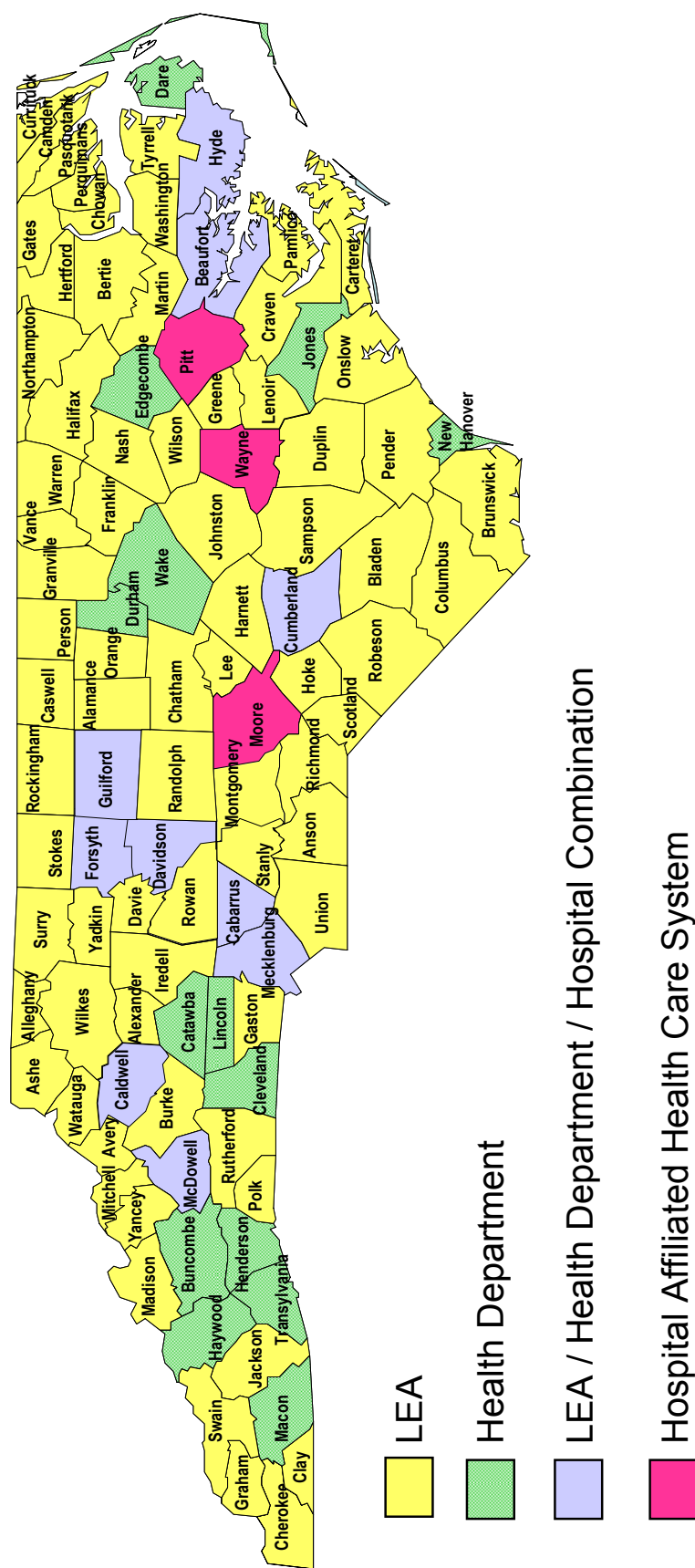
+ LEAs at or below 1:750 school nurse to student ratio

## Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2008-09

County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Pasquotank	1,006	Surry County	1,076
Pender	906	Elkin City Schools	841
Perquimans	859	Mt. Airy City Schools +	527
Person County	868	Swain +	337
Pitt	1,422	Transylvania	1,229
Polk	1,222	Tyrrell +	585
Randolph County	2,068	Union	1,149
Asheboro City	902	Vance County +	671
Richmond +	669	Wake County	2,267
Robeson	1,063	Warren County +	648
Rockingham County	1,733	Washington +	647
Rowan-Salisbury	1,588	Watauga	1,108
Rutherford	1,550	Wayne	1,172
Sampson	1,263	Wilkes County	1,169
Clinton City	764	Wilson County	2,066
Scotland +	502	Yadkin County	986
Stanly	1,546	Yancey +	606
Stokes County	1,411	<b>North Carolina</b>	1,207

+ LEAs at or below 1:750 school nurse to student ratio

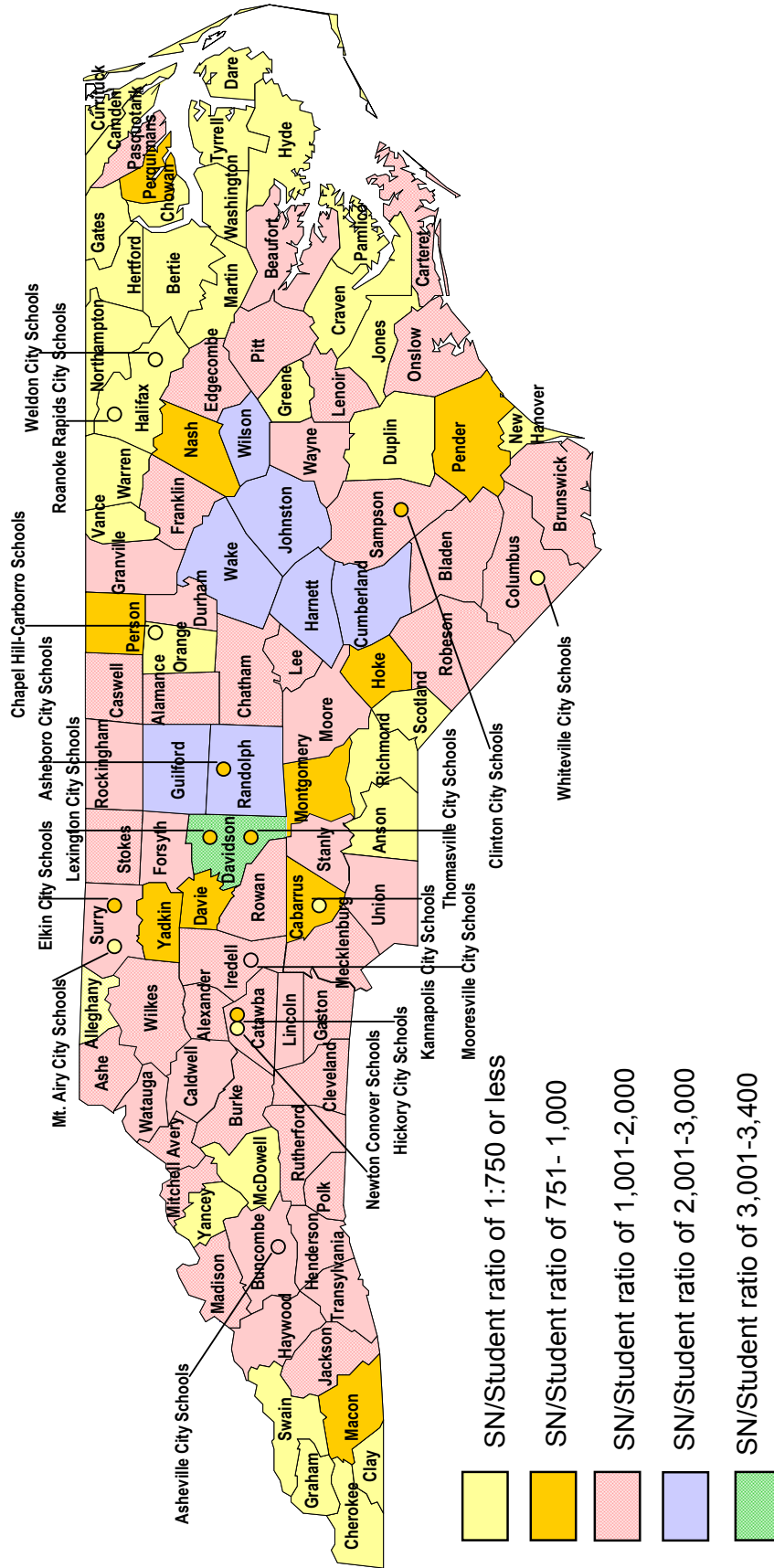
# Administrative Responsibility for School Nursing Services July 2009



August 2009

Source: NC Annual Survey of School Health Services NC DHHS

# School Nurse/Student Ratio SY 2008 - 2009

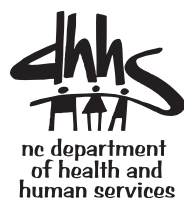


Note: The standard school nurse to student ratio of 1:750 has been adopted by the N.C. Public Health Task Force, the N.C. Department of Public Instruction and the N.C. Division of Public Health and is based on recommendations made by the American Academy of Pediatrics, the Centers for Disease Control and Prevention, and the National Association of School Nurses.

Source: NC Annual Survey of School Health Services NC DHHS August 2009







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